

Appl. No. 10/764,278

In the Claims:

Listing of all claims:

1 1. (Currently Amended) A welding power supply
2 having an arc-width control, comprising:
3 a power circuit having a welding output and at
4 least one control input, wherein the welding output is
5 characterized by a plurality of output welding parameters;
6 and
7 a controller, having at least one control output,
8 connected to the at least one control input, and having a
9 user adjustable arc-width control input, and a user
10 adjustable wire feed speed input, wherein the controller
11 includes an arc width control module having as inputs the
12 wire feed speed input and the arc width control input, and
13 having at least one welding parameter adjustment output, and
14 wherein the at least one welding parameter adjustment output
15 has a gain responsive to the wire feed speed input, such
16 that ~~the gain varies over the entire range~~ there are at least
17 three gains over a range of possible wire feed speeds.

2. (Cancelled.)

1 3. (Original) The welding power supply of claim
2 1, wherein the at least one welding parameter adjustment output
3 gains have at least three taught points for a given wire feed
4 speed.

1 4. (Original) The welding power supply of claim
2 3, wherein the welding parameter adjustment output gains are
3 interpolated between the at least three taught points.

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1 5. (Original) The welding power supply of claim
2 1, wherein the plurality of output welding parameters include
3 peak amps, background amps, pulse width, frequency, adaptive
4 voltage, ramp up and ramp down, and the at least one welding
5 parameter adjustment includes adjustments for at least three of
6 the plurality of output parameters.

1 6. (Original) The welding power supply of claim
2 5, wherein the at least one welding parameter adjustment includes
3 adjustments for at least five of the plurality of output
4 parameters.

1 7. (Original) The welding power supply of claim
2 6, wherein the at least one welding parameter adjustment includes
3 adjustments for at least six of the plurality of output
4 parameters.

1 8. (Original) A welding power supply having an
2 arc-width control, comprising:
3 a power circuit having a welding output and at
4 least one control input, wherein the welding output is
5 characterized by at least five output parameters; and
6 a controller, having at least one control output,
7 connected to the at least one control input, and having a
8 user adjustable arc-width control input, and a user
9 adjustable wire feed speed input, wherein the controller
10 includes an arc width control module having as inputs the
11 wire feed speed input and the arc width control input, and
12 having at least five welding parameter adjustment outputs
13 that are responsive to the wire feed speed input and the
14 arc-width control input.

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1 9. (Original) The welding power supply of claim
2 8, wherein the at least five welding parameter adjustment outputs
3 have gains responsive to the wire feed speed input, wherein the
4 gains vary over the entire range of possible wire feed speeds.

1 10. (Original) The welding power supply of claim
2 9, wherein the at least five welding parameter adjustment output
3 gains has at least three taught points for a given wire feed
4 speed.

1 11. (Original) The welding power supply of claim
2 10, wherein the at least five welding parameter adjustment output
3 gains are interpolated between the at least three taught points.

1 12. (Original) The welding power supply of claim
2 9, wherein the at least five output parameters include peak amps,
3 background amps, pulse width, frequency, and adaptive voltage,
4 and the at least five welding parameter adjustment outputs
5 includes adjustments for peak amps, background amps, pulse width,
6 frequency, and adaptive voltage.

1 13. (Original) The welding power supply of claim
2 12, wherein the at least five output parameters further include
3 ramp up and ramp down, and the at least five welding parameter
4 adjustment outputs further include adjustments for ramp up and
5 ramp down.

1 14. (Original) A welding power supply
2 comprising:
3 a source of power, having at least one power
4 source control input;
5 a wire feeder, connected to the source of power
6 and having at least one wire feeder control input; and

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7 a controller having welding parameter outputs
8 connected to the power source control input and the wire
9 feeder control input, and further including an arc width
10 input, wherein at least five welding parameters are
11 simultaneously controlled in response to the arc width input
12 such that a desired arc width is obtained, without changing
13 other arc characteristics.

1 15. (Original) The welding supply of claim 14
2 wherein the at least five welding parameters include at least
3 five of peak amps, background amps, pulse width, pulse
4 frequency, adaptive voltage, ramp up and ramp down.

1 16. (Currently Amended) A welding power supply
2 having an arc-width control, comprising:
3 power means for providing a welding output in
4 response to at least one control input, wherein the welding
5 output is characterized by a plurality of output welding
6 parameters; and
7 control means for controlling the power means with
8 at least one control output connected to the at least one
9 control in response to a user adjustable arc-width control
10 input and a user adjustable wire feed speed input, wherein
11 the control means includes an arc width control means for
12 controlling arc width, and having as inputs the wire feed
13 speed input and the arc-width control input, and having at
14 least one welding parameter adjustment output, and wherein
15 the at least one welding parameter adjustment output has a
16 gain responsive to the wire feed speed input, wherein the
17 control means includes means for receiving at least three
18 taught points for a given wire feed speed and further
19 including means for interpolating the welding parameter
20 adjustment output gains between the at least three taught

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21 ~~points such that there are at least three gains over a range~~
22 ~~of possible wire feed speeds.~~

1 17. (Original) The welding power supply of claim
2 16, wherein the at least one welding parameter adjustment output
3 gain varies over the entire range of possible wire feed speeds.

18-19. Canceled.

1 20. (Currently Amended) The welding power supply of
2 claim 16 ~~19~~, wherein the plurality of output parameters include
3 peak amps, background amps, pulse width, frequency, adaptive
4 voltage, ramp up and ramp down, and the at least one welding
5 parameter adjustment includes adjustments for at least three of
6 the plurality of output parameters.

1 21. (Currently Amended) The welding power supply of
2 claim 20 ~~19~~, wherein the at least one welding parameter
3 adjustment includes adjustments for at least five of the
4 plurality of output parameters.

1 22. (Original) The welding power supply of claim
2 21, wherein the at least one welding parameter adjustment
3 includes adjustments for at least six of the plurality of output
4 parameters.

1 23. (Original) A welding power supply having an
2 arc-width control, comprising:
3 power means for providing a welding output in
4 response to at least one control input, wherein the welding
5 output is characterized by at least five output parameters;
6 and

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7 control means for controlling the power means with
8 at least one control output connected to the at least one
9 control input in response to a user adjustable arc-width
10 control input and a user adjustable wire feed speed input,
11 and for providing at least five welding parameter adjustment
12 outputs that are responsive to the wire feed speed input and
13 the arc-width control input.

1 24. (Original) The welding power supply of claim
2 23, wherein the at least five welding parameter adjustment
3 outputs have gains responsive to the wire feed speed input,
4 wherein the gains vary over the entire range of possible wire
5 feed speeds.

1 25. (Original) The welding power supply of claim
2 24, wherein the at least five welding parameter adjustment output
3 gains has at least three taught points for a given wire feed
4 speed.

1 26. (Original) The welding power supply of claim
2 25, wherein the at least five welding parameter adjustment output
3 gains are interpolated between the at least three taught points.

1 27. (Original) The welding power supply of claim
2 26, wherein the at least five output parameters include peak
3 amps, background amps, pulse width, frequency, and adaptive
4 voltage, and the at least five welding parameter adjustment
5 outputs includes adjustments for peak amps, background amps,
6 pulse width, frequency, and adaptive voltage.

1 28. (Original) The welding power supply of claim
2 25, wherein the at least five output parameters further include
3 ramp up and ramp down, and the at least five welding parameter

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4 adjustment outputs includes further include adjustments for ramp
5 up and ramp down.

1 29. (Original) A welding power supply
2 comprising:
3 power means for providing welding power in
4 response to at least one power source control input;
5 wire feeding means, connected to the source of
6 power, for feeding wire in response to at least one wire
7 feeder control input; and
8 control means for providing welding parameter
9 outputs, connected to the power source control input and the
10 wire feeder control input, and further including an arc
11 width input, and further for simultaneously controlling at
12 least five welding parameters are in response to the arc
13 width input such that a desired arc width is obtained,
14 without changing other arc characteristics.

1 30. (Original) The welding supply of claim 29
2 wherein the at least five welding parameters include at least
3 five of peak amps, background amps current, pulse width, pulse
4 frequency, adaptive voltage, ramp up and ramp down.

1 31. (Currently Amended) A method of providing
2 welding power, comprising:
3 providing welding power, wherein the power is
4 characterized by a plurality of output parameters; and
5 controlling the power, and the plurality of output
6 parameters, in response to a user adjustable output set
7 point; and
8 controlling arc width and the user adjustable set
9 point in response to a user adjustable arc-width control
10 input, by adjusting the plurality of output parameters with

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11 a gain, wherein the gain ~~varies over the entire~~ has at least
12 ~~three values over a~~ range of possible user adjustable output
13 set points.

1 32. (Original) The method of claim 31, wherein
2 the user adjustable output set point is a wire feed speed
3 setting.

33-34. (Cancelled.)

1 35. (Currently Amended) The method of claim ~~31~~ 34,
2 wherein the gains have at least three taught points for a given
3 wire feed speed.

1 36. (Original) The method of claim 35, wherein
2 the gains are interpolated between the at least three taught
3 points.

1 37. (Original) The method of claim 31, wherein
2 the plurality of output parameters include peak amps, background
3 amps, pulse width, frequency, adaptive voltage, ramp up and ramp
4 down, and the adjusting includes adjusting at least three of the
5 plurality of output parameters.

1 38. (Original) The method of claim 37, wherein
2 the adjusting includes adjusting at least five of the plurality
3 of output parameters.

1 39. (Original) The method of claim 37, wherein
2 the adjusting includes adjusting at least six of the plurality of
3 output parameters.

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1 40. (Original) A method of arc welding,
2 comprising:
3 providing welding power in response to at least
4 one control input, wherein the welding power is
5 characterized by at least five output parameters; and
6 controlling the power in response to a user
7 adjustable arc-width control input and a user adjustable
8 wire feed speed input by adjusting the at least five
9 parameters in response to the wire feed speed input and the
10 arc-width control input.

1 41. (Original) The method of claim 40, wherein
2 the at least five welding parameter adjustments have gains
3 responsive to the wire feed speed input, wherein the gains vary
4 over the entire range of possible wire feed speeds.

1 42. (Original) The method of claim 40, wherein
2 the at least five welding parameter adjustment output gains have
3 at least three taught points.

1 43. (Original) The method of claim 42, wherein
2 the at least five welding parameter adjustment output gains are
3 interpolated between the at least three taught points.

1 44. (Original) The method of claim 40, wherein
2 the at least five welding parameter adjustment output gains have
3 at least three taught points.

1 45. (Original) The method of claim 44, wherein
2 the at least five output parameters further include ramp up and
3 ramp down, and the at least five welding parameter adjustment
4 outputs includes further include adjustments for ramp up and ramp
5 down.

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1 46. (Original) A method of providing welding
2 power comprising:
3 feeding wire to a weld;
4 providing power to the weld; and
5 controlling output parameter of the power and the
6 speed of feeding wire in response to a user adjustable arc
7 width input, wherein at least five output parameters are
8 simultaneously controlled in response to the arc width input
9 such that a desired arc width is obtained, without changing
10 other arc characteristics.

1 47. (Original) The method of claim 46 wherein the
2 at least five welding parameters include at least five of peak
3 amps, background amps current, pulse width, pulse frequency,
4 adaptive voltage, ramp up and ramp down.